Published in final edited form as:

Pediatr Infect Dis J. 2018 March ; 37(3): 278–279. doi:10.1097/INF.0000000000001779.

In Reply: Recovery of CD4 T Cells in HIV/HCV Coinfected Children: Is it Really Impaired?

Adedeji O. Majekodunmi, MBBS, MRes^{1,2}, Robin Callard, PhD^{1,2}, Nigel Klein, MBBS, PhD^{1,3}, and Joanna Lewis, PhD^{2,4}

¹UCL Great Ormond Street Institute of Child Health, 30 Guilford Street, London WC1N 1EH

²CoMPLEX: The UCL Centre for Computation, Mathematics and Physics in the Life Sciences and Experimental Biology, University College London, Gower Street, London WC1E 6BT

³Great Ormond Street Hospital, Great Ormond Street, London WC1N 3JH

⁴Department of Infectious Disease Epidemiology, Imperial College London, St Mary's Campus, Norfolk Place W2 1PG

Keywords

Pediatric hepatitis C; HIV and Hepatitis C co-infection; CD4+ T cell reconstitution; non-linear mixed effects modelling; anti-retroviral therapy

In Reply:

We appreciate the interest shown by McPhee *et al* [1] in our recent article on modelling CD4 T cell recovery in HIV/HCV co-infected and HIV-mono-infected children on antiretroviral therapy [2], and the additional evidence from the Spanish Cohort of HIV Infected Children which they report. The higher CD4 counts in HIV/HCV co-infected children on antiretroviral therapy than in similar, HIV-mono-infected children is interesting, and perhaps not surprising given their superior HIV suppression. It is difficult to comment further on these results without more details of the analysis, but we agree that it is important to consider markers of immune function that go beyond CD4 count.

We acknowledge again the limitations in our study that are highlighted in our Discussion section. Data on HCV viral load was very patchy and only available in 23 children.

A large number of different ART regimes were used, making a detailed comparison between regimes very difficult. Our decision to include HIV/HCV co-infected children from European countries outside Ukraine was made in order to maximize the number of co-infected children and thus the power of our analysis, but came at the cost of consistency in treatment guidelines across the different countries in the study. A very small number of

Corresponding Author and for Reprints: Dr Adedeji Majekodunmi, MBBS, MRes. Immunobiology Unit, UCL Great Ormond Street Institute of Child Health, 30 Guilford Street, University College London WC1N 1EH. Tel: 020 7905 2215, Fax: 020 7905 2882, adedeji.majekodunmi@gmail.com.

Conflict of Interest

All authors: none declared.

children (<1%) who had acquired HIV horizontally were included in the study, but their inclusion is unlikely to have affected our conclusions. We did not adjust by time to viral suppression as we aimed to identify pre-ART predictors of CD4 recovery. In future work, it would be interesting to model CD4 T cell counts alongside viral load using fully mechanistic models which allow for viral load dynamics.

In conclusion, we believe the cohort that McPhee *et al* describe can provide interesting further insight into the effect of HCV co-infection on the developing, HIV-infected immune system. We are glad that the findings by McPhee *et al* endorse our conclusions and we agree that slower CD4 T cell reconstitution is multifactorial and may be due to poorer virological control. We agree that chronic inflammation is likely to have long-term impact on HIV/HCV co-infected children and functional immunological data may provide further insight.

Sources of Funding

This work is supported by a studentship awarded to A.O.M. and funded by the Medical Research Council UK at the Centre for Mathematics and Physics in the Life Sciences and Experimental Biology (CoMPLEX), London United Kingdom [MRC grant number: MR/J015822/1].

References

1. Fernandez McPhee C, Sainz T, Navarro ML. Recovery of CD4 T cells in HIV/HCV coinfecting children: is it really impaired? *Pediatr Infect Dis J*. 2017
2. Majekodunmi AO, Thorne C, Malyuta R, et al. Modelling CD4 T Cell Recovery in Hepatitis C and HIV Co-infected Children Receiving Antiretroviral Therapy. *Pediatr Infect Dis J*. 2017; 36(5):e123–e129. [PubMed: 28403051]